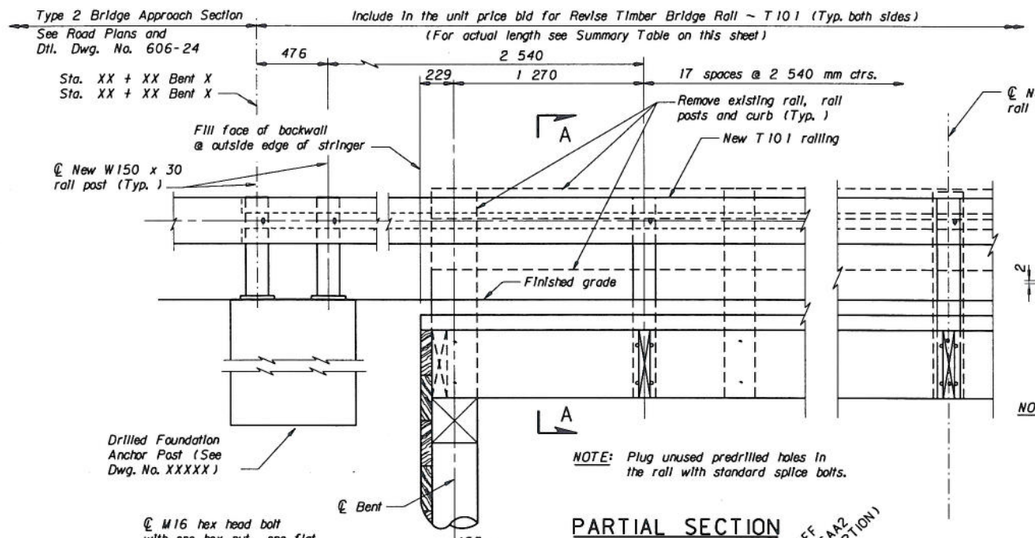
STATE	PROJECT NUMBER	SHEET NO.
MONTANA		

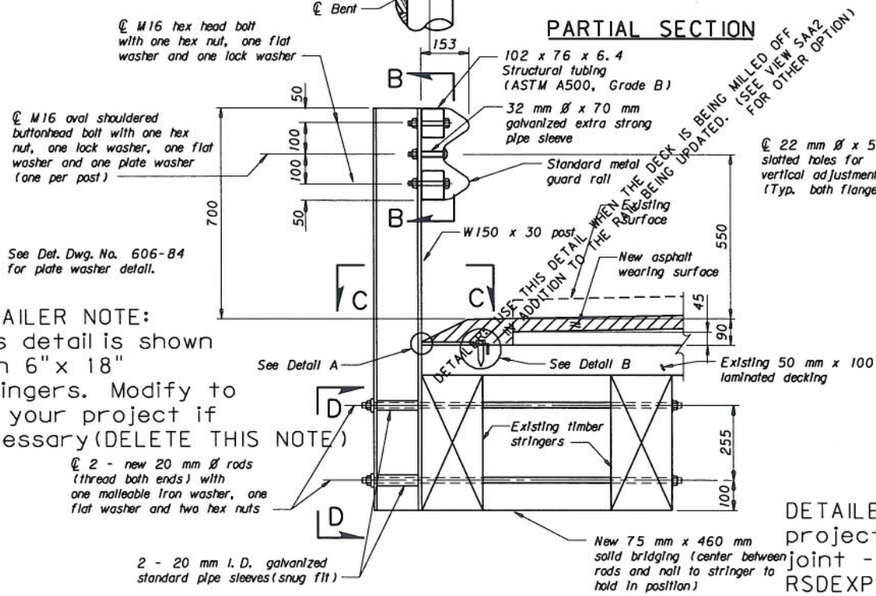
NOTE: Attach panel lengths of tube members continuously to a minimum of three posts.

DETAILER NOTE: Modifiy the Partial Section to fit your project (DELETE THIS NOTE)



PARTIAL SECTION

NOTE: Plug unused predrilled holes in the rail with standard splice bolts.

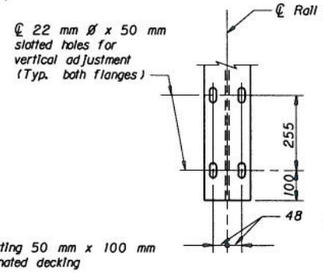


NOTE: See Det. Dwg. No. 606-84 for plate washer detail.

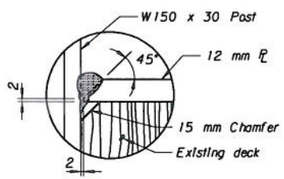
DETAILER NOTE: This detail is shown with 6"x 18" stringers. Modify to fit your project if necessary (DELETE THIS NOTE)

℄ 2 - new 20 mm Ø rods (thread both ends) with one malleable iron washer, one flat washer and two hex nuts

SECTION A-A

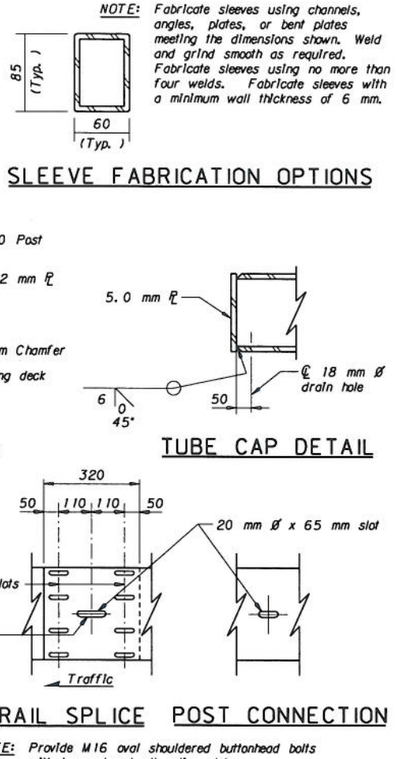


VIEW D-D



DETAIL A

NOTE: The weld is subject to ultrasonic testing.

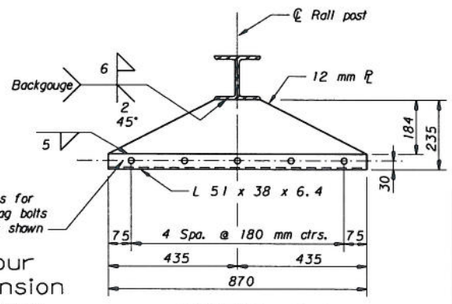


SLEEVE FABRICATION OPTIONS

TUBE CAP DETAIL

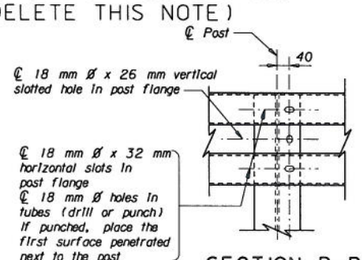
RAIL SPLICE POST CONNECTION

NOTE: Provide M16 oval shouldered buttonhead bolts with hex nuts at all splice slots.

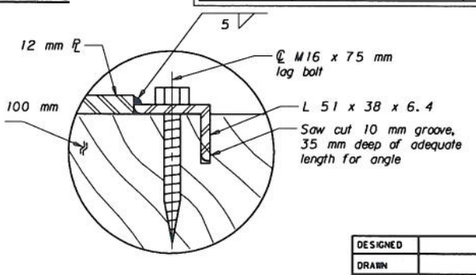


SECTION C-C

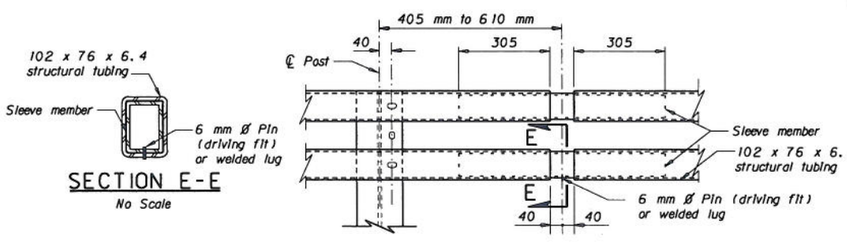
DETAILER NOTE: If your project has an expansion joint - use named views RSDEXP and TSDEXP instead of RSD and TSD (DELETE THIS NOTE)



SECTION B-B



DETAIL B



SECTION E-E
No Scale

TUBE SPLICE DETAIL

NOTES

GALVANIZING: Galvanize all bolts, nuts, washers and pipe sleeves in accordance with AASHTO M 232M. Galvanize metal guardrail in accordance with ASTM Specification A 653M or AASHTO M 111M.

REFLECTORS: Place a reflector on each end rail post and at approximately equal spacing (every third rail post but not to exceed 7620 mm) between end rail posts. Mount reflectors with reflectorized face toward oncoming traffic. See Dtl. Dwg. No. 606-05 for reflector detail. Mount reflector to W-beam post web with an approved adhesive. Include the cost of the reflector in the unit price bid for Revise Timber Bridge Rail - T101.

PAYMENT: Revise Timber Bridge Rail - T101 is paid for by the linear meter which is full compensation for all resources necessary to complete the item. The number of linear meters of Revise Timber Bridge Rail - T101 for payment is the distance between centerlines of the drilled foundation anchor posts as shown on this sheet (See Summary Table below). Use posts and plates conforming to AASHTO M 270M Grade 250T3. Use metal guardrail conforming to AASHTO M 180 and lap in direction of traffic.

ERECTION: Set the rail parallel to the roadway grade. Set rail posts perpendicular to adjacent roadway grade and vertical in relation to roadway cross slopes. Adjust rail to proper rail height using vertical slots in rail posts.

PAINTING: Paint all posts, structural tubing and plates (except as noted) in accordance with the Standard Specifications. Galvanizing the posts, structural tubing and plates in accordance with AASHTO M 111M is allowed.

SELECT STRUCTURAL TIMBER FOR SOLID BRIDGING: Use standard sawn Inter-mountain Douglas Fir, Western Larch or Pacific Coast Douglas Fir conforming to AASHTO M 168 meeting the requirements for numerical stress values shown on the table below for Dense No. 1 timber for solid bridging. Clearly note the grade of timber on the shop plans to avoid oversight. AASHTO classification for solid bridging is Beams and Stringers. Use treated timber meeting the requirements of Standard Specification Section 706.

DESCRIPTION	EXTREME FIBER IN BENDING Fb & TENSION PARALLEL TO GRAIN Ft (MPa)		HORIZ. SHEAR Fv (MPa)	COMPRESSION (MPa)		MODULUS OF ELASTICITY E (MPa)
				PERPENDICULAR TO GRAIN Fc⊥	PARALLEL TO GRAIN Fc	
75 x 460 Bridging	Fb	Ft	0.59	5	7.6	11 700
	10.7	5.3				

DIMENSIONS: All dimensions are in millimeters except as noted. Verify all dimensions in the field before ordering any materials and before fabrication is begun.

Details shown on this drawing apply to both sides for the entire length of the structure.

Remove existing rails, railposts, curb and hardware as shown on this drawing. All removed items remain the property of the State. Set aside for pickup by State Forces. Removal costs are included in the unit price bid for Revise Timber Bridge Rail - T101.

Replace any timber which is to be incorporated in the rehabilitated structure that is damaged during construction at no additional cost to the State.

Chamfer edge of deck directly under location where 12 mm plate connects with rail post to clear fillet weld as shown in Detail A.

Plug open holes exposed by revisions with treated dowels. Thoroughly coat all new holes, cuts and chamfers as per Standard Specifications.

FABRICATION: For the purposes of fabrication, this rail system is considered an ancillary item. The requirements of subsection 1.3.6 of AASHTO/AWS D1.5 apply.

SUMMARY TABLE

FEATURE CROSSED	BRIDGE IDENTIFICATION NUMBER	STATION	GENERAL LAYOUT DWG. NO.	LENGTH OF RAIL (ONE SIDE ONLY) (LINEAR METERS)	TOTAL LENGTH FOR PAYMENT (LINEAR METERS)	ANCHOR POST (EACH)
XXXXX	P00000 000+0.000	XXX+XX.XX	XXXX	XX.XXX	XX.X	X

MONTANA DEPARTMENT OF TRANSPORTATION

PRELIMINARY

BRIDGE RAIL REVISION

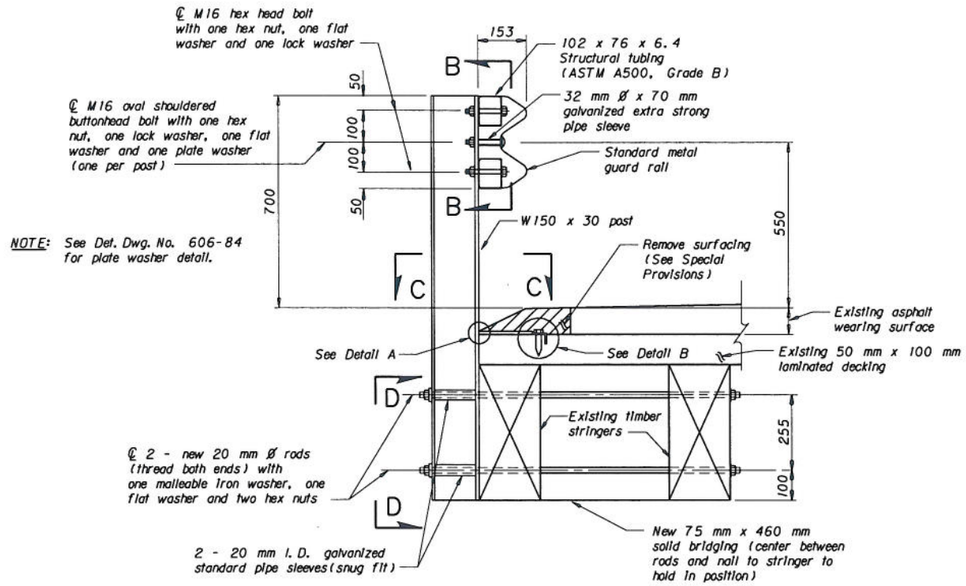
DESIGNED		
DRAWN		
CHECKED		
REVISED		
REVISED		
REVISED		

FILENAME: BRRRV001.DGN DRAWING NO.

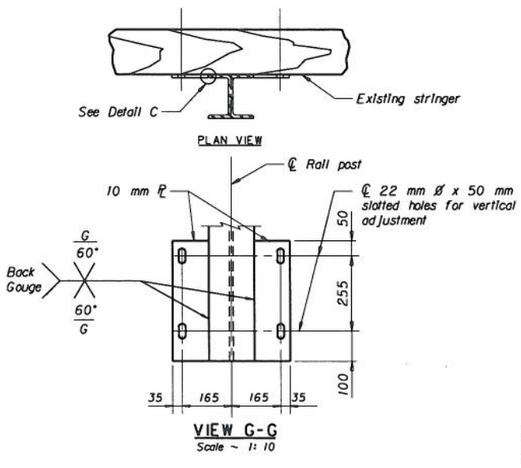
...\BRSTDS\SEED\METRIC\BRRRV001.DGN
1/28/2011 10:57:50 AM u1426

DETAILER: USE THIS DETAIL ONLY WHEN REPLACING THE RAIL, NOT THE ENTIRE DECK SURFACE.

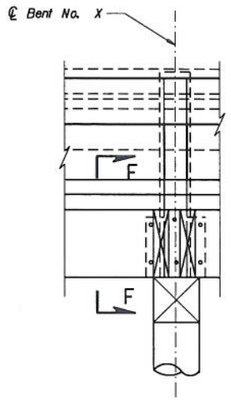
VI = SAA2
1 : 10

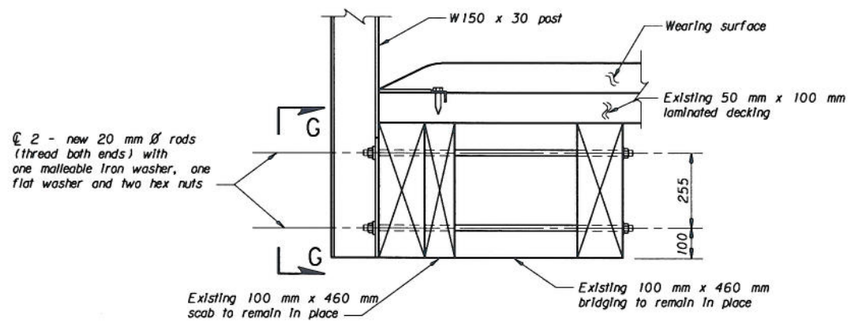


SECTION A-A



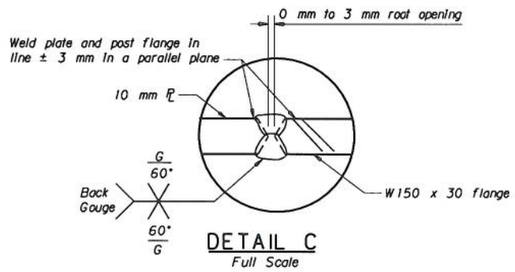
VIEW G-G
Scale ~ 1: 10





SECTION F-F ~ @ Bent No. X
Scale ~ 1 : 10

NOTE TO DETAILER:
REFERENCE THIS VIEW IN AT 1 : 10



DETAIL C
Full Scale

DETAILER NOTE: If a new post interferes with an existing intermediate bent, use the named views PEMOD, SECFF, VWGG AND DETC